

REMARKS

At the time of the Office Action dated July 7, 2004, claims 1, 4-7, and 11-12 were pending in this application. Of those claims, claims 1, 4-7, and 11 have been rejected. Applicant acknowledges, with appreciation, the Examiner's indication that claim 12 contains allowable subject matter.

CLAIMS 1, 4-7, AND 11 ARE REJECTED UNDER 35 U.S.C. § 103 FOR OBVIOUSNESS BASED UPON CRUZ-URIBE ET AL., U.S. PATENT NO. 4,680,595 (HEREINAFTER CRUZ-URIBE), IN VIEW OF CHANG, U.S. PATENT NO. 6,099,111, AND HASEGAWA, ET AL., U.S. PATENT NO. 5,530,465 (HEREINAFTER HASEGAWA)

On pages two through four of the Office Action, the Examiner concluded that one having ordinary skill in the art would have been motivated to modify the ink-jet printer head of Cruz-Uribe in view of Chang and Hasegawa to arrive at the claimed invention. This rejection is respectfully traversed.

In the statement of the rejection, the Examiner asserted that Cruz-Uribe teaches the basic structure of a head for an ink jet printer. The Examiner then relied upon Chang to teach that a common ink supply port is located between a plurality of piezoelectric elements, as recited in claim 1. With regard to the motivation to modify Cruz-Uribe in view of Chang, the Examiner asserted the following on page three of the Office Action:

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the printhead [sic] disclosed by Cruz-Uribe et al. such that locating the common ink supply port between a plurality of said piezoelectric elements as disclosed by Chang. The motivation of doing so is to prevent crosstalk as much as possible from accruing thereby allowing the

ink droplet ejection characteristics to be stabilized as taught by Cruz-Urbe et al. (Column 2, lines 28-31).

Applicant respectfully submits that one having ordinary skill in the art would not have been motivated to modify Cruz-Urbe in view of Chang based upon the motivation asserted by the Examiner. The Examiner referred specifically to column 2, lines 28-31 of Chang and asserted it would have been obvious to modify Cruz-Urbe in view of Chang "to prevent crosstalk as much as possible from accruing thereby allowing the ink droplet ejection characteristics to be stabilized." Notwithstanding that Chang discusses stabilizing ink droplet ejection characteristics, the citation referred to by the Examiner fails to teach that the position of a common ink supply port relative to piezoelectric elements plays any importance in achieving this asserted benefit.

In column 6, lines 16-19, Chang states that his inventive concepts (and thus the asserted benefits) are also applicable when piezoelectric elements are replaced with heating elements. Thus, the piezoelectric elements are not critical to the asserted benefits associated with Chang. Furthermore, in column 6, lines 41-43, Chang states that when the pressure generating chambers (i.e., piezoelectric elements) "are arranged on only one side of the communication path, the same effects can be attained." Thus, Chang fails to teach that the piezoelectric elements or the positioning of the piezoelectric elements relative to the ink supply port is important in achieving the asserted benefit of stabilizing ink droplet ejection characteristics. Since the positioning of the piezoelectric elements relative to the ink supply port is not important in obtaining the benefits extolled by Chang, one having ordinary skill in the art would not have been motivated to modify Cruz-Urbe in view of Chang in the manner suggested by the Examiner based upon the Examiner's asserted motivation.

Applicant also respectfully submits that one having ordinary skill in the art would not have been motivated to modify Cruz-Urbe in view of Hasegawa based upon the motivation asserted by the Examiner. With regard to the motivation to modify Cruz-Urbe in view of Hasegawa, the Examiner asserted the following on page four of the Office Action:

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the printhead [sic] disclosed by Cruz-Urbe et al. such that forming the ink nozzles and the ink passages on the silicon substrate as disclosed by Hasegawa et al. The motivation of doing so is to obtain high nozzle density even when number of nozzles is increased as taught by Hasegawa et al. (Column 4, lines 34-35).

Although the Examiner cited column 4, lines 34-35 of Hasegawa for support of the asserted motivation "to obtain high nozzle density even when number of nozzles is increased," this citation is found in the "Objects of the Invention," and there is no apparent teaching in Hasegawa that the stated object of obtaining high nozzle density results from forming a substrate and plurality of ink passages using plasma etching and lamination. As such, the Examiner has failed to link the proposed modification (i.e., forming a substrate and plurality of ink passages using plasma etching and lamination) with the asserted benefit (i.e., obtaining high nozzle density even when number of nozzles is increased). Since there is no linkage between the proposed modification and asserted benefit, one having ordinary skill in the art would not have been motivated to modify Cruz-Urbe in view of Hasegawa.

Furthermore, although the Examiner specifically cited column 15, line 21-30 of Hasegawa to teach plasma etching, this citation is completely silent as to plasma etching. Furthermore, a review of the entirety of Hasegawa does not yield any reference to plasma etching. Therefore, even if a motivation existed to modify Cruz-Urbe in view of Hasegawa, such a combination would still fail to teach ink nozzles formed by plasma etching.

For the reasons stated above, Applicant submits that one having ordinary skill in the art would not have been motivated to modify Cruz-Urbe in view of Chang and Hasegawa so as to arrive at the claimed invention. Applicant, therefore, respectfully solicits withdrawal of the imposed rejection of claims 1,4-7, and 11 under 35 U.S.C. § 103 for obviousness based upon Cruz-Urbe in view of Chang and Hasegawa.

Applicant has made every effort to present claims which distinguish over the prior art, and it is believed that all claims are in condition for allowance. However, Applicant invites the Examiner to call the undersigned if it is believed that a telephonic interview would expedite the prosecution of the application to an allowance. Accordingly, and in view of the foregoing remarks, Applicant hereby respectfully requests reconsideration and prompt allowance of the pending claims.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417, and please credit any excess fees to such deposit account.

Respectfully submitted,

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